

# Distributed Services Architecture in dLibra Digital Library Framework

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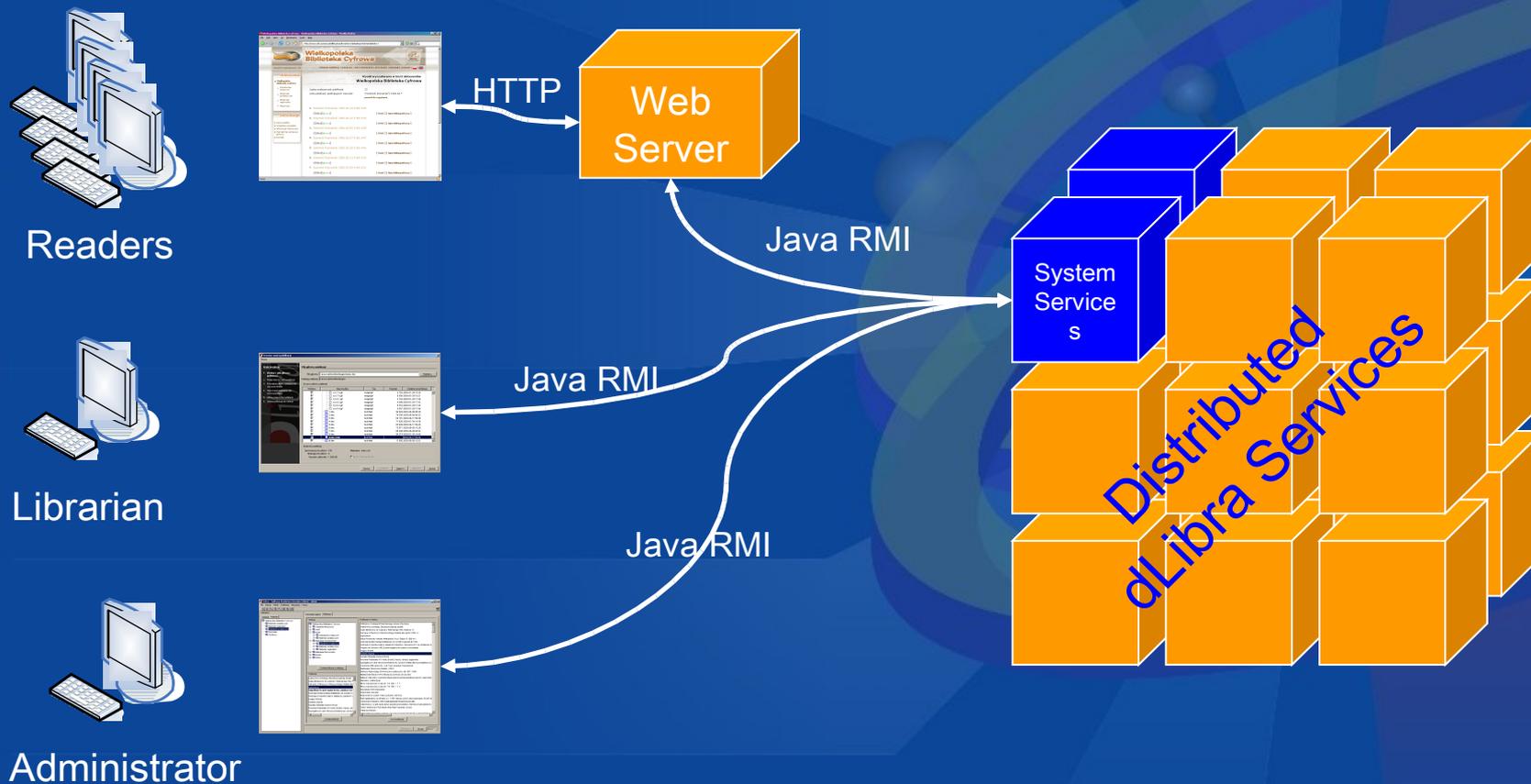
# What is dLibra?

- First Polish digital library framework
- Developed in PSNC since 1999
- Now deployed in
  - Wielkopolska Digital Library (10.2002)
  - Wrocław University of Technology Digital Library (11.2004)
  - Five other test installations in different Polish universities

# dLibra Features

- Multitier, distributed and portable DL platform
- Support for multiple content types
- Hierarchic collections
- Resources versioning
- Advanced support for resources' metadata
- Multiple searching mechanism
- Extended access management

## dLibra Architecture



# Distributed dLibra Services

- Each service can be deployed on different host
- Services does not need to know their locations
- Services can send and receive events

# Distributed dLibra Services

- Services implementations can be easily replaced
- Services can access each other (if authorized)
- External services can access DL system (if authorized)
  - Via dLibra interfaces with Java RMI
  - Via OAI-PMH and Z39.50 (*planned*)

# Distributed dLibra Services

- Metadata server
  - for storing and managing resources metadata and metadata dictionaries
  - for managing collections
- Content server
  - for storing and managing content

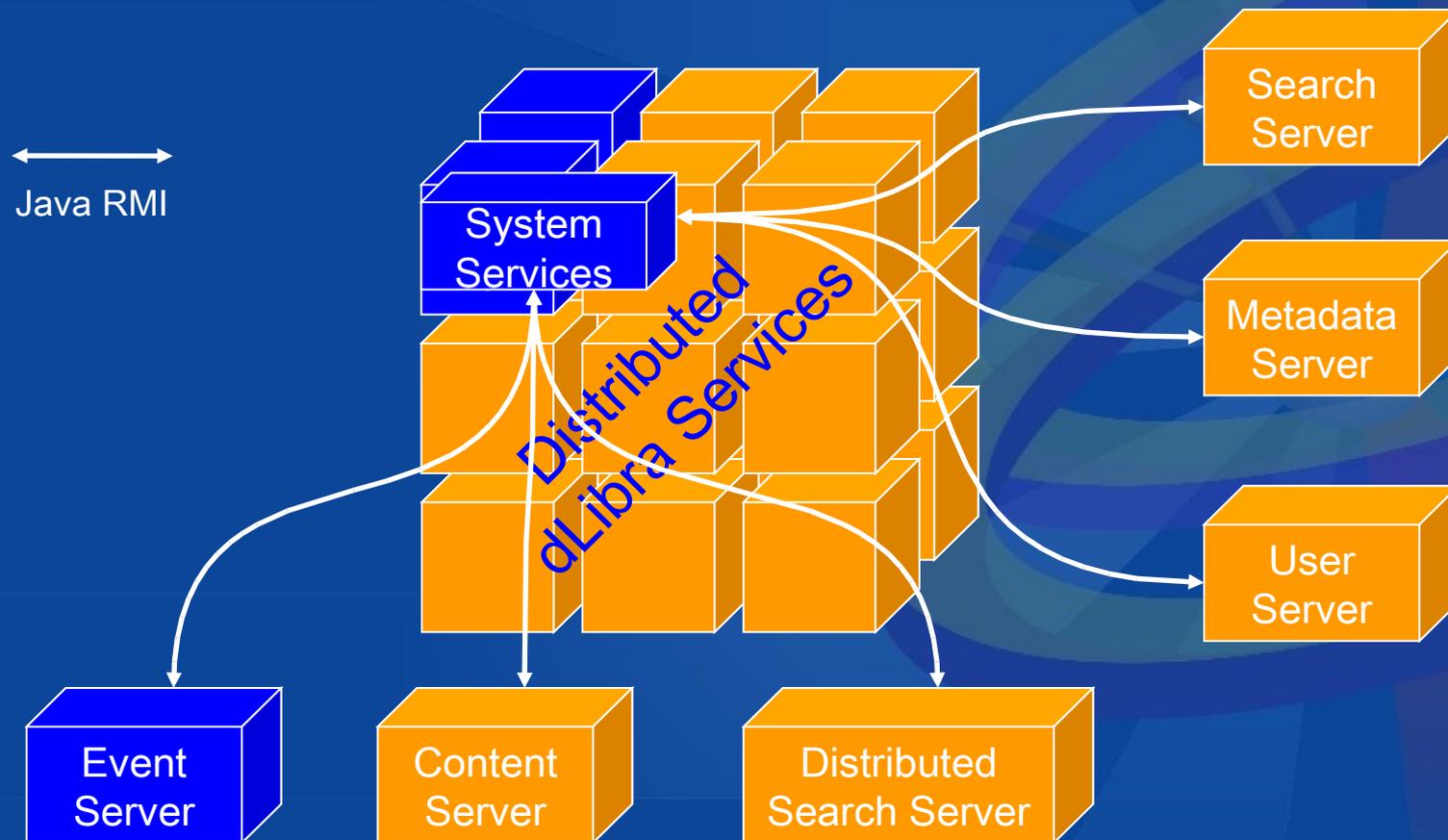
# Distributed dLibra Services

- User server
  - for managing users and access rights
- Search server
  - for indexing and searching content and metadata
- Distributed search server
  - for indexing and searching multiple remote repositories

# Distributed dLibra Services

- System services
  - for services registering and resolving
- Event server
  - for sending and receiving events from other services

# Services Registering and Resolving



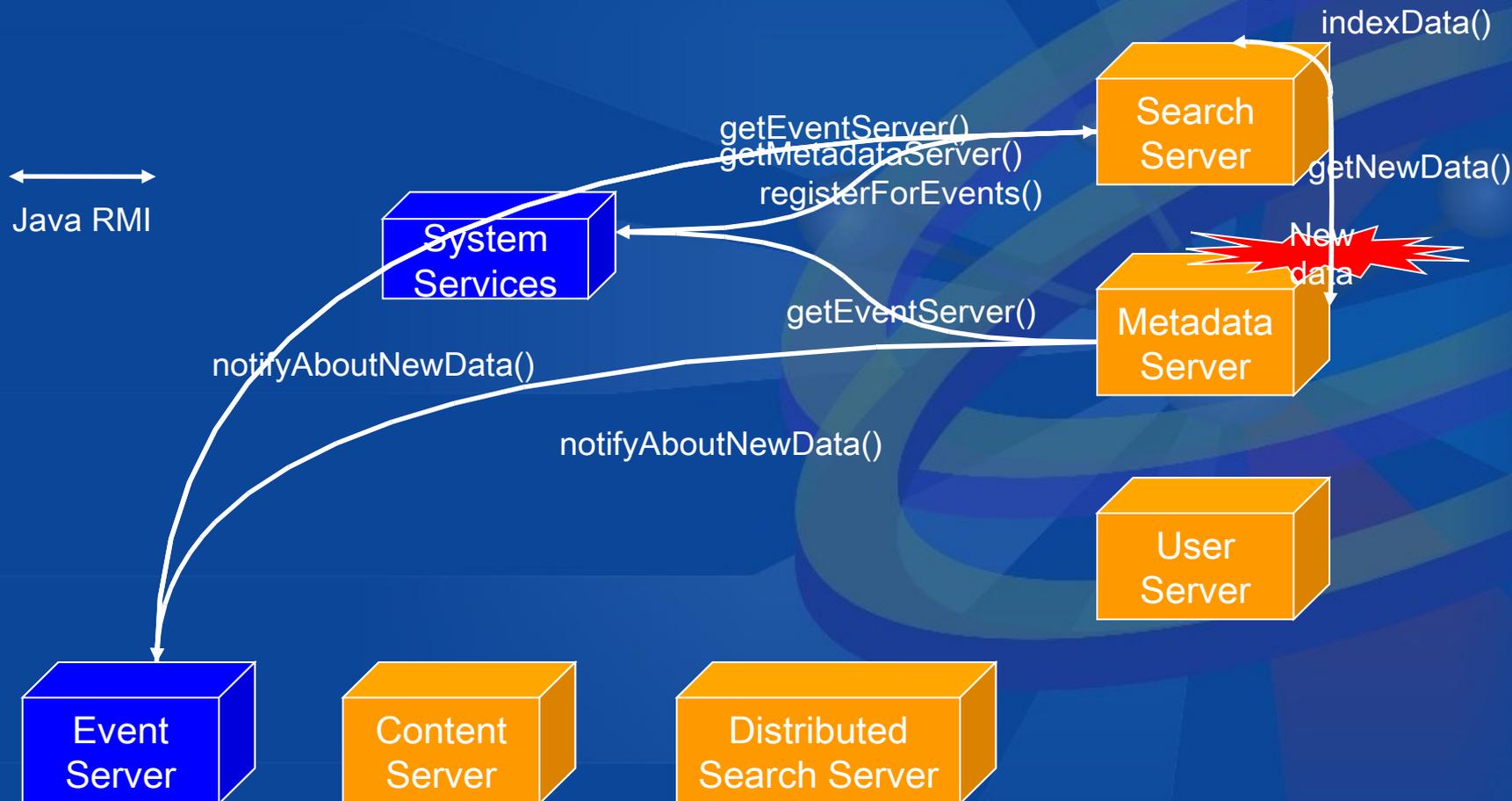
# Event-based Messaging

- Push mechanism used to notify services about important changes in system components
- Each service can register for specified types of events
- Each service can send events
- Events can be forwarded immediately or in packages after specified time

# Event-based Messaging

- Simple scenario
  - Search server registers for events about new data
  - New data appears
  - Search server is notified about this data
  - Search server gets data and index it

# Event-based Messaging



## Weak points

- Failure of Event Server = pause in events-based messaging
- Failure of System Services = pause in services resolving
- Failure of any other service = limited DL functionality

...but...

# Availability improvements

- Storing events
  - In Event Server – before sending events to registered service
  - In all other services – before sending events to Event Server

# Availability improvements

- Backup services
  - In future can be also used for load balancing
- Service monitoring
  - Hang-outs detection
  - Overload detection

# Distributed Services Architecture in dLibra Digital Library Framework

<http://dlibra.psnc.pl/>

**Thank you for your attention!**